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PRELIMINARY DENSITY REPORT
PROPOSED HULL CORE

Prepared for: National Capital Commission

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October 2, 1972

The purpose of this paper is to provide basic data on the various densities of the Federal development of the proposed Hull Core. It is intended as a preliminary reference document which will be augmented and fully completed at a later date.

Report Outline:

1. Historical Background

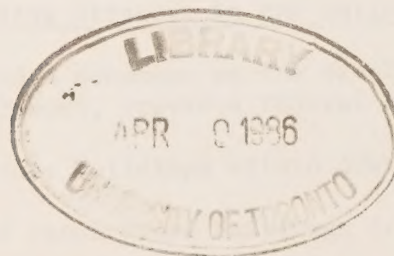
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1. HISTORICAL BACKGROUND

A) Actions taken in 1969

- 1) Following a decision by the Federal Government to develop the National Capital on both sides of the Ottawa River, the Honorable Jean Marchand announced on May 29, 1969

"the expropriation of 15 acres of land in downtown Hull to be used in the first stage of expansion of the National Capital Core into Quebec".

During this same period, this vast structural operation for the "centre-ville" of Hull was augmented by the additional expropriation of 3.6 acres of land by the Quebec Government. This parcel, located in the heart of the new core was intended for the site of a new Court House.

The population, affected by this action involved 1,186 persons on the 15 acres and a further 350 persons on the Provincial land, for a total of 1,536 persons.

- 2) In 1969, the National Capital Commission prepared its first document on the development of Hull (HULL 1969-1995). The vast programme consisted of developing the acquired lands for a combination of office and commercial use. The Place du Portage became the first building to respond to this mixed use programme.

The Federal Government also involved themselves in the creation of service infrastructures for the island of Hull and the Quebec region.

This effort consisted of

- a) Construction of Portage Bridge
- b) Participation in the construction of Water and Sewer network for the Quebec region
- c) Federal and Provincial agreement on the construction of a new road network for the Outaouais Region.

These actions were paralleled by the widening of Maisonneuve by the Provincial Government.

B) Core Area Plan and Federal Building Strategy in the National Capital

In February of 1971, NCC prepared a document on the development of the Capital Core. As detailed in this report, previous Federal office accommodation consisted of

- a) the leasing of private buildings within downtown Ottawa
- b) the construction of crown owned buildings in decentralized locations.

Federal policy now consists of

- a) a decrease in the leasing of private buildings
- b) the construction of crown owned buildings in the downtown areas of Ottawa and Hull.

As described in the Core Area Plan Document - Feb. 1971, the development goals consist of the following.

- To develop the central areas of Ottawa and Hull commensurate with national aspirations, and regional needs in achieving a bilingual-bicultural Capital.
- To create central area environments of exemplary aesthetic and functional quality.
- To expand the parliamentary precinct by reconstruction of Wellington Street and areas south of it.
- To locate federal offices at strategic sites in order to enhance the efficient functioning of government administration, and to stimulate development of complementary functions such as retailing and consumer services, private offices, and socio-cultural activities.
- To group together certain federal and private activities in order to implement strategic development patterns and create greater diversity and interest for people.
- To implement a public transportation system for intra-core circulation, not only to relieve automobile congestion but also to intensify development opportunities and improve mobility between all major points of interest in Ottawa and Hull.
- To "repeople" the Core by guiding residential development to key locations on federally owned lands.
- To develop a network of pedestrian ways and urban spaces linking up government buildings, commercial areas, cultural and entertainment centres, etc.

C) Initial 10-year Programme for major construction projects in the Hull Area by the Department of Public Works

On April 6, 1971, via a press release, the Honourable Arthur Lang, Minister of Public Works, announced "a large office construction programme in the City of Hull which in addition to the Place du Portage now under construction would involve six new buildings starting in 1973 and proceeding at the rate of one or two buildings in each year until the programme is completed".

This programme consisted of 2.96 million sq.ft. of office space serving a federal population of 16,000 employees. (Refer to charts for various data)

NCC became responsible for planning and establishing principles of development for the Federal lands.

D) 10-year Capital Plan and Accommodation Revisions Department of Public Works - February 1972

The initial 10-year programme was revised based on the additional space needed by the various departments that were to be relocated in Hull. This new programme consisted of 5 million sq.ft. of office space for 22,626 employees.

This major increase had direct ramifications on the Federal properties in the new Hull Core.

It involves

- a) Enlargening some of the original building sites
- b) Revising the order of the departments that are to be relocated in Hull (see proposed programme revision)
- c) Determining additional sites outside the Federal 15 acres (E.B. Eddy or elsewhere) to realize the full 10-year programme
- d) Assuring ample flexibility in the development of the committed sites and buildings to allow for possible future redefinitions of the federal departments destined for Hull.

E) Other Projects in the Vicinity of the Federal Development

It should be noted that other projects within the proposed downtown core have made demands on and have decreased the original 15 acres of Federal that were intended for Federal office construction. They are the proposed new City Hall and the recently announced Place du Centre previously referred to as the Provincial Site.

a) City Hall

The exchange of land with the City of Hull involved the old City Hall site and park with the federal property immediately East of the park.

In exchange for the underground use of the old City Hall Site, (for a parking garage) the City received 45,000 sq.ft. of Federal land for their new City Hall.

The residual 26,000 sq.ft. of federal land because of its size and location is also destined as green public space resulting in a total loss of "construction area" of 71,000 sq.ft. The City Hall programme may include a cultural centre.

b) Provincial Site

The recent announcement on the Provincial Project called "Place du Centre" involves a programme of approximately 1.7 million square feet.

In order to realize their project, they have need of approximately 60,700 sq.ft. of federal lands composed of a portion of the original 15 acres plus a portion of recently acquired lands from the E.B. Eddy company (old parking site).

The Place du Centre programme includes the Provincial offices and Court House, extensive office and commercial space, a hotel and convention centre and residential and entertainment facilities.

F) 10-year Programme - Federal office Accommodation Hull

The following data details the office requirements and the various revisions that have taken place to date.

1) Forecast February 1971 (10-year Capital construction programme)

	Department	Programme NET AREA	Year complete	Population in 1982
Place du Portage I	C. & C.A.	310,000	1972	1,836
Place du Portage II	Labour	250,000	1972-73	928
Phase #3	M.&I./I.A.&N.D.	700,000	1974-75	4,022
Phase #4	D.S.S.	550,000	1975-76	2,419
Phase #5	R.E.E.	250,000	1976-77	1,409
Phase #6	S.O.S./I.T. & C.	500,000	1977-78	3,487
Phase #7	Unallocated	400,000	1980-81	1,880
TOTAL		2,960,000		15,981

2) Forecast February 1972 (D.P.W. 10-year Capital Plan and Accommodation revision)

Place du Portage I	C. & C.A.	430,000	1972-73	2,150
Place du Portage II	Labour	247,600	1973-74	1,168
Phase #3	M.&I./I.A.&N.D.	1,165,600	1975-76	5,460
Phase #4	D.S.S.	1,105,200	1975-77	5,277
Phase #5	R.E.E.	351,400	1977-78	1,477
Phase #6	S.O.S./I.T.&C.	1,233,800	1979-80	5,354
Phase #7	Unallocated	400,000	1980-81	1,740
TOTAL		4,933,600		22,626

3) Proposed Programme Revision (NCC)

Place du Portage I	C. & C.A.	344,000	1972-73	1,576
Place du Portage II	Labour	247,600	1973-74	1,168
Phase #3	I.A.&N.D./R.E.E.	1,133,600	1975-76	5,322
Phase #4	M. & I.	538,000	1976-77	2,480
Phase #5	D.S.S.	1,105,200	1976-78	5,277
Phase #6	S.O.S./I.T.&C.	1,366,000	1979-80	5,935
Phase #7	Unallocated	400,000	1980-81	1,740
TOTAL		5,134,400		23,498

2. PRINCIPLES OF DEVELOPMENT

The goals of the Core Area Plan, previously listed, reflect federal government interests and leadership in developing an exemplary National Capital. Further to these goals, the following principles form the basis of the Hull Core Concept.

a) Integration of Uses

Consistent with the quality and character of Hull, and to ensure a vital urban environment that can in spite of its dimensions retain a human scale, the uses in the urban core should be mixed and integrated to include office, commercial, housing, cultural and recreational facilities and amenities. This new core should be programmed and structured so as to generate continuous activity and involvement of people. Of utmost importance is that the core does not become desolate after the 5 o'clock "exodus" hour.

b) Emphasis on Horizontal Development

Integration of activities can be better achieved by providing stronger horizontal bonds between structures. The "island" building concept common to most of our cities should be replaced with the "continuous" building concept to assure a more spontaneous flow of activities as well as natural and easy pedestrian movement from one area to another. As well as providing maximum flexibility, in the use of the spaces, this approach permits a greater range of functional interrelationships.

The significance of a major horizontal development integrated with the existing fabric of Hull, the contours of Hull Island and its shoreline and the truly magnificent vistas and views goes without saying.

c) Complete separation of all Circulation Systems

The efficiency of any movement system depends on its operating with a minimum amount of mutual conflict or interference. Such is the desire and intent in the proposed Hull Core. As well, the entire area is intended to be linked with a continuous system of weather protected pedestrian paths and spaces at their own basic level and related to other movement systems at key locations. Alternate open air corridors would complete and augment the pedestrian network.

d) Place d'accueil - A Circulation Interchange

As the title suggests, the Place d'accueil has been conceived to reflect in a physical way, the entrance to the city. It's raison d'être stems from the functional need to focus at a central point the various movement systems which be design are grade separated so that there is no mutual interference in their flow patterns. Of utmost importance is the emphasis on the pedestrian and his efficient transfer from one mode of transportation to another.

The scale and quality of the Place d'accueil is aimed at assuring a physical and visual relationship between the pedestrian and his immediate "centre-ville" environment. Being centrally located at the intersection

of Maisonneuve and Verchères, it affords convenient connections to all sectors of the proposed core as well as to major parcels of the E.B. Eddy lands. Further, it acts as a binding agent between the Federal, Provincial and Private lands - for example Sites 3, 4, Provincial Complex, Rue Principale Mall and Commercial.

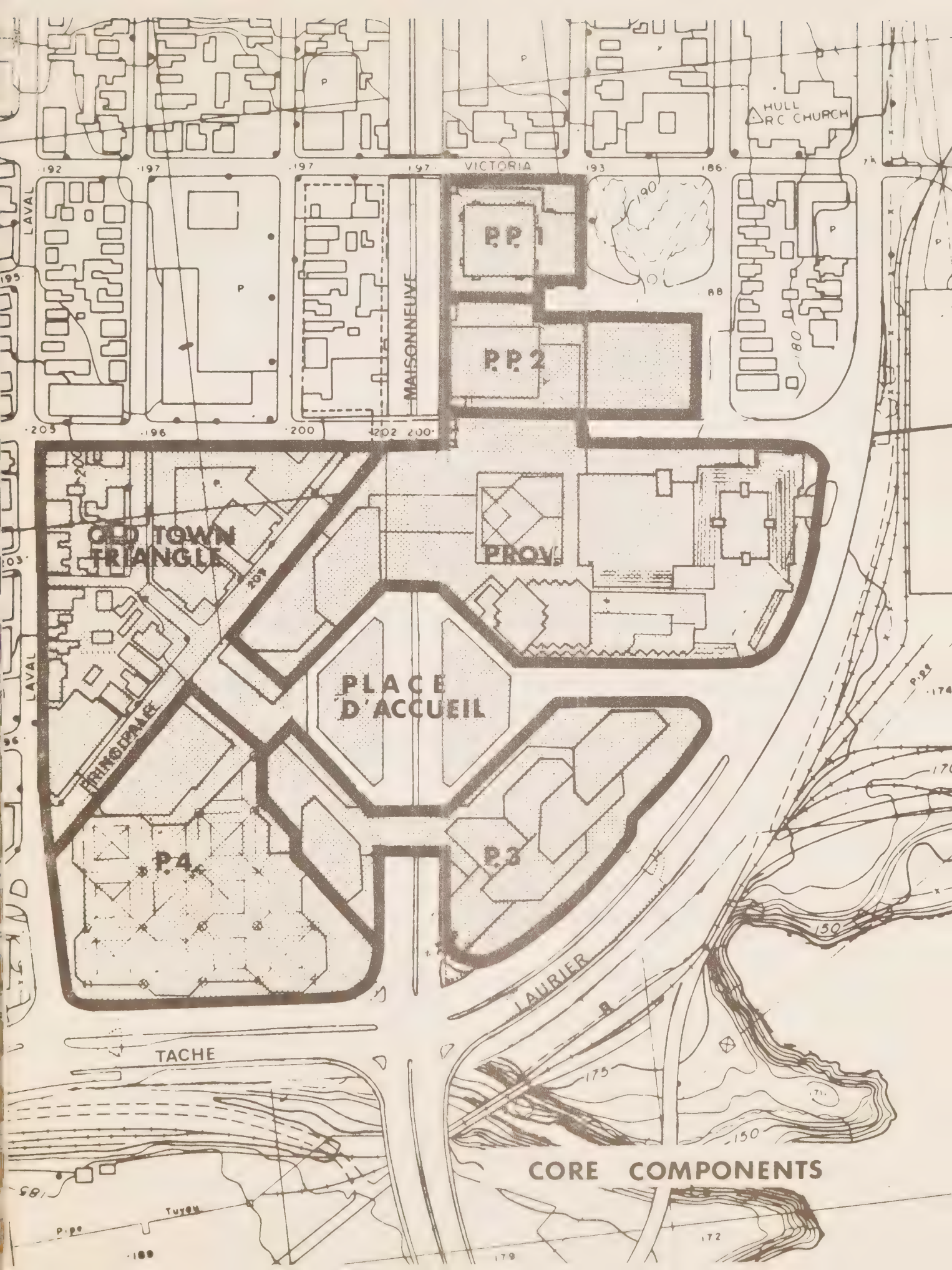
e) The Human Dimension of Hull

The most significant element of the Hull Core Concept is its emphasis on the human dimension which has been deemed to be an integral part of Old Hull. The three dimensional realizations of this concept are intended to result in an environment catering to the emotional as well as to physical and functional needs of the Urban man.

The entire "base" of the proposed core, in Federal as well as private projects is virtually a continuous pedestrian activity space on one and sometimes two levels. Along this "base" are a multitude of public spaces and amenities in enclosed and open situations that serve to enrich the person experiencing them.

The significance of this "activity base" is that be he sitting, walking or riding, it is from the floor of the city that man relates in a positive or negative way to his "urban environment". It is the intent that the reaction be a positive one.

The section on the Pedestrian Space Ratio details the type and amount of pedestrian spaces to be found in the new Hull Core.



3. CORE DENSITY

A) Floor Space Index - FSI

The determination of the FSI in the Hull Core projects is based on the following definition taken from the by-laws of the Cities of Ottawa and Montréal (City of Hull - not available but expected to be the same).

"Floor space index" means the ratio of the gross floor area of a building or buildings to the gross area of the lot the building or buildings are located.

Note that the gross area of floor refers to outside perimeter of building and gross area of lot refers to actual property line limits.

The following data and map illustrate the proposed FSI for the Federal and Provincial projects:

<u>Project</u>	<u>Gross Floor Area</u>	<u>Gross Site Area</u>	<u>FSI</u>
Place du Portage 1 & 2	856,000	150,678	5.68
Phase 3	1,299,400	189,825	6.84
Phase 4	950,000	211,780	4.48
Provincial Site	1,760,000	289,136	6.08

The Federal Project Average FSI = 5.66

With the Provincial Site FSI = 5.77

The accompanying map illustrates the FSI proposed in the Hull Core and existing in the Ottawa Core. In general, those of Hull are reasonably less than those of Ottawa where the CBD has an FSI of 8.0.

Of interest are the following examples in Ottawa and Montréal of projects completed or contemplated:

OTTAWA

Place de Ville 1	Land Area 110,500 sq.ft.	FSI 6.5
Place de Ville 2	Land Area 106,400 sq.ft.	FSI 8.0

(Note that the definition at the time of Place de Ville 1 & 2, used net rentable area and did not include structure; updating the FSI would result in a greater index.)

Department of National Defence (Outside CBD)	FSI 5.0
Bank of Canada (Within CBD)	FSI 8.0

MONTREAL

Place Dupuis	5.5
Place Desjardins	7.5
Place Radio-Canada	$\frac{1}{2}$ 3.0
Place du Cercle	existing 7.0
	accepted 12.0

McGill Station	12
Concordia East	<u>±</u> 9.0

Zoning regulations presently under study list the following limits for the "centre-ville" of Montréal:

Residential	6.0
Commercial	12.0
Industrial	12.0

HULL

The City of Hull is contemplating the following FSI:

Vicinity of Core	8 to 10
C.B.D.	6 to 8

These limits are yet to be discussed and finalized.



FLOOR SPACE INDEX

PROPOSED
CITY OF HULL
F.S.I. 6-8-10

F.S.I. EXISTING OTTAWA CORE
PROPOSED HULL CORE



B) Pedestrian Space Ratio - P.S.R.

The "pedestrian space ratio" is a term intended to relate the building site area to the total area utilized in a significant manner for the pedestrian. This includes public malls, gathering spaces, enclosed and open corridors, etc. and with the exception of two level commercial projects takes place basically at the "ground" level of the city.

The accompanying map illustrates the zones utilized in the analysis.

<u>Project</u>	<u>Site Area</u>	<u>Interior</u>	<u>Exterior</u>	<u>Total</u>	<u>Ratio (P.S.R.)</u>
Place du Portage 1 & 2	150,678	41,500	52,450	93,970	62%
Phase 3	189,825	58,200	60,600	118,800	63%
Phase 4	211,780	45,000	90,000	135,000	63%
Provincial	289,136	160,000	75,000	235,000	81%
Sub-Total		304,700	278,070	582,770	

As well, there are additional spaces destined to form part of the pedestrian network:

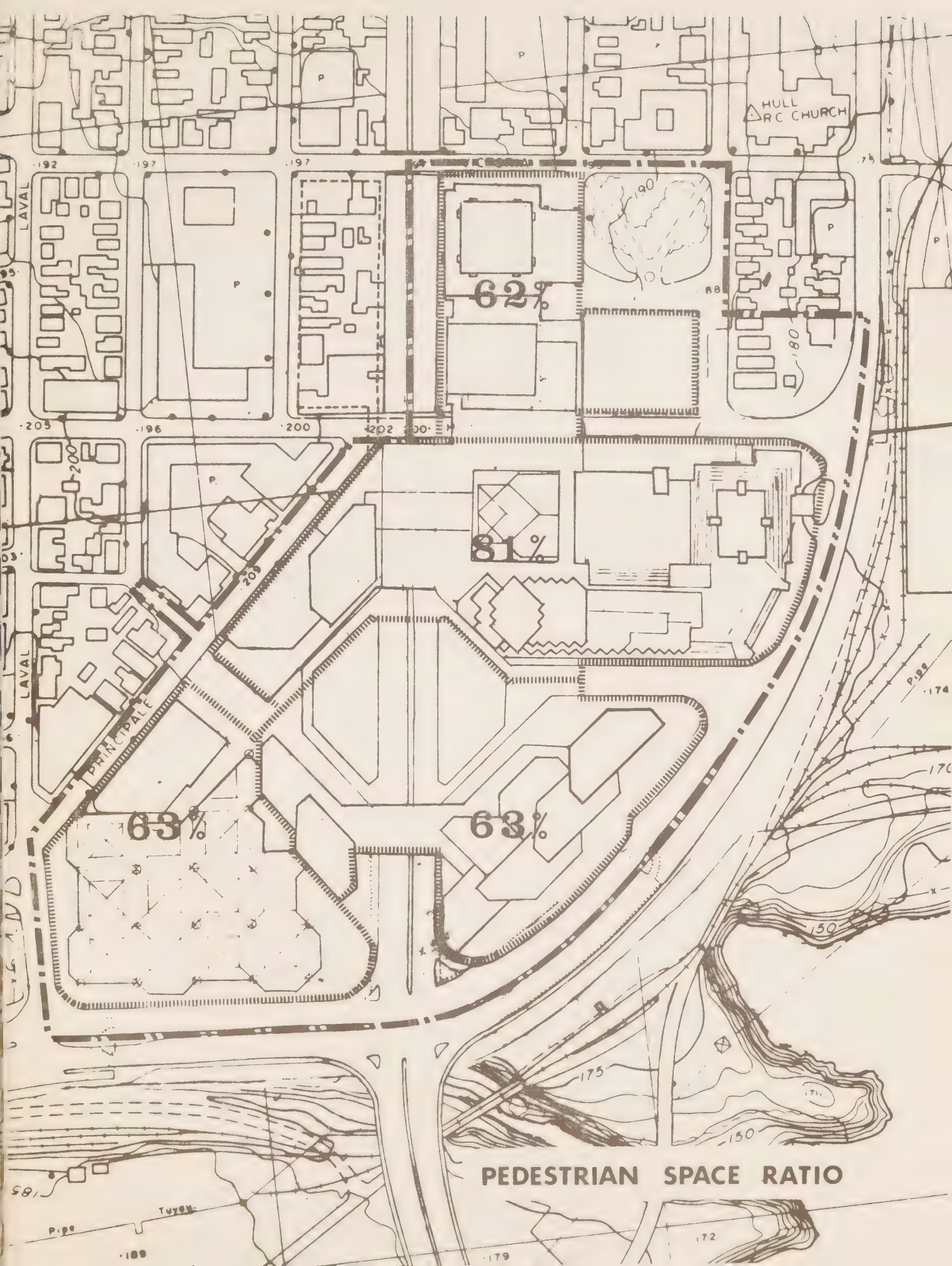
a) Rue Principale Mall	43,000
b) Rue Aubry Mall	3,960
c) Link - Mall and Place d'accueil	19,032
d) Hôtel de Ville Park	26,136
e) Park extension - to E.B. Eddy	26,000
f) Park extension - Rue Notre-Dame	15,800
Sub-Total	133,928 sq.ft.

The study area, outlined on the plan consists of the following:

Total Study Area Land	1,359,680 sq.ft. or 31.2 acres
Street Area (Vehicles)	344,093 sq.ft. or 7.8 acres
Interior Pedestrian Space	304,700 sq.ft. or 6.9 acres
Exterior Pedestrian Space	411,998 sq.ft. or 9.4 acres
Total "Base" Pedestrian Space	716,698 sq.ft. or 16.4 acres

It should be noted that an attempt will be made to convert the entire area noted as the "Old Town Triangle" to a pedestrian precinct of boutiques, artist studios and galleries, intimate cafes, etc. Further, if the integrated programme proposed for site 4 is realized, a large portion of the roof level of the project would be "semi-public" space (50 - 75,000 sq.ft.) for use by the inhabitants.

While similar "pedestrian" space data on other centres was not available at the time of this report, the significance of the Hull Core situation speaks for itself. The "activity base" of the city is assured.



PEDESTRIAN SPACE RATIO

C) Population

The following population date (persons per day) is based on the revised Federal accommodation programme and its analysis by the traffic consultants.

<u>Project</u>	<u>Gross</u> <u>Floor Area</u>	<u>Federal</u> <u>Staff</u>	<u>Other</u> <u>Staff</u>	<u>Federal</u> <u>Visits</u>	<u>Other</u> <u>Visits</u>	<u>Residents</u>
Place du Portage 1	476,000	1,576	550	790	3,800	-
Place du Portage 2	380,000	1,168	450	584	3,150	-
Phase 3	1,299,400	5,322	75	2,661	750	-
Phase 4	950,000	2,690	500	1,345	3,700	500
Federal Total	3,105,400	10,756	1,575	5,380	11,400	500

The Provincial Project called Place du Centre does not yet have a detailed and finalized programme. At time of analysis, it consisted of the following:

Provincial	1,760,000	-	7,515	-	25,550	300
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The actual number of persons per day utilizing the Hull Core is estimated to be approximately 36,000 people. If the "visits" generated by the same persons are considered, the estimated would be approximately 63,008 people per day.

D) Place d'accueil

Capacity

The following data is an evaluation of the total number of passengers expected to utilize the Place d'accueil during the peak hours. The figures are from an analysis of all the persons involved during the day within the core and include Federal office employees, Commercial staff and shoppers and various visitors:

Place du Portage 1	746
Place du Portage 2	562
Phase 3	2,113
Phase 4	1,201
Provincial Site	2,163
Total	6,787 or 6,800 persons

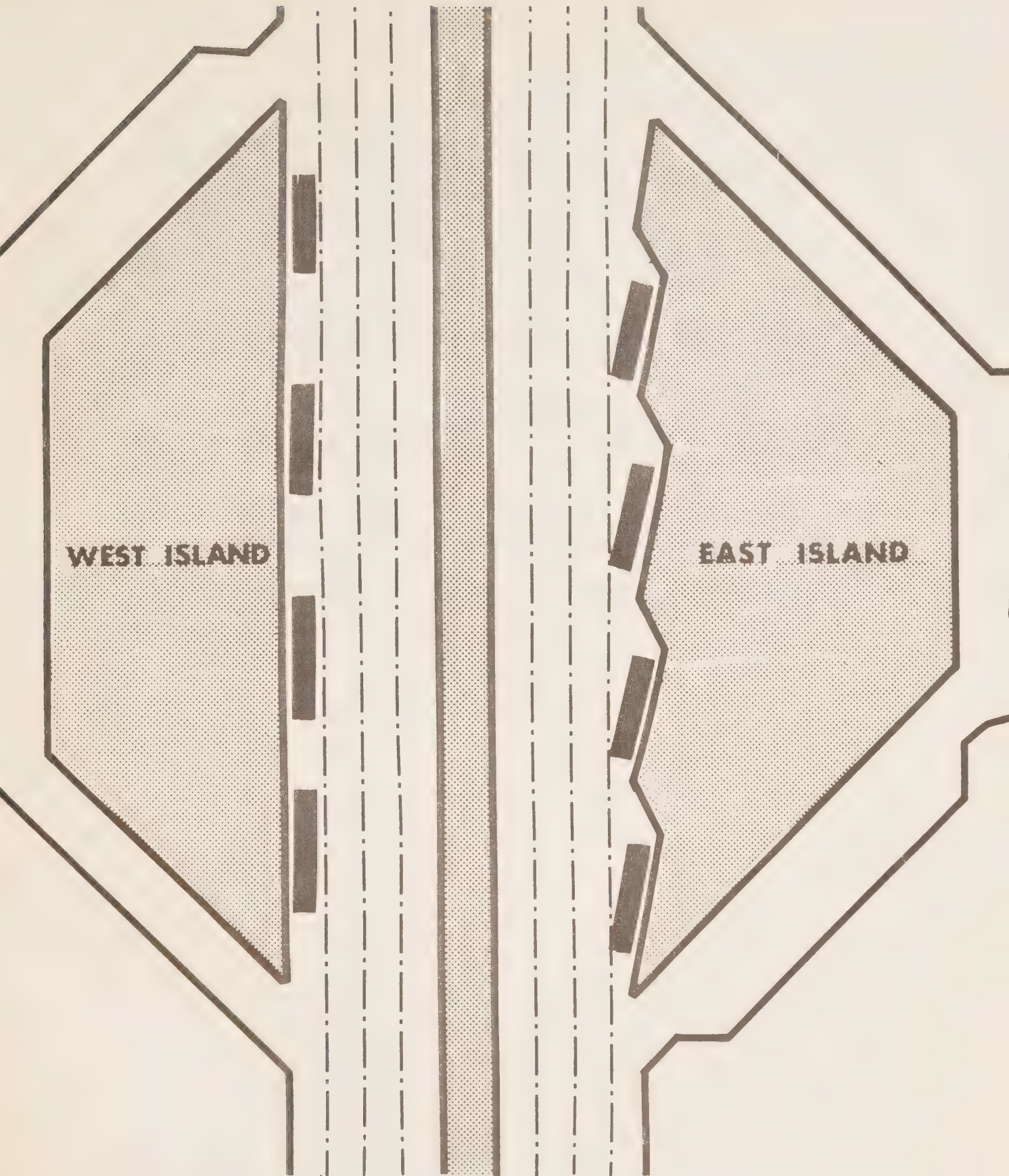
It is reasonable to assume that there would be an equal split in each direction (3,400 / 3,400). A standard 40' city bus can accommodate approximately 45 to 53 passengers seated, with a maximum capacity of 75 passengers seated and standing. It is assumed that a comfortable 35 passengers will load or unload at the Point of Arrival due to other pick-ups and destinations. A reasonable and efficient timing schedule for peak hour would be 2 minutes per bus. A single stall could accommodate 30 buses per hour or approximately 1,050 new passengers. Therefore, three stalls on each island would handle the expected peak loads. The islands, however, are designed to permit a minimum of 4 stalls per island resulting in a potential volume of 8,400 seated passengers at peak hours, 1,600 passengers more than is expected.

Because of the greater capacity of the islands, it is conceivable that a portion of the bus stop length could be utilized as a pick-up and drop-off point for taxis and private vehicles - especially outside peak hours.

The following sketch of the Place d'accueil illustrated alternate methods of handling the bus stalls along the same basic length:

West Island - Standard straight curb formation allowing 4 bus stops well spaced or 6 bus stops in a "bumper to bumper" situation.

East Island - Indented curb formation allowing efficient approach and departure manouvers and specific stalls for specific routes.



WEST ISLAND

EAST ISLAND

POINT OF ARRIVAL
BUS CAPACITY

E) Vehicular Capacity - Street Level

An examination of the number of traffic lanes and the grade level Maisonneuve - Taché-Laurier intersection clearly reveals the generous capacity of the road network within the core area.

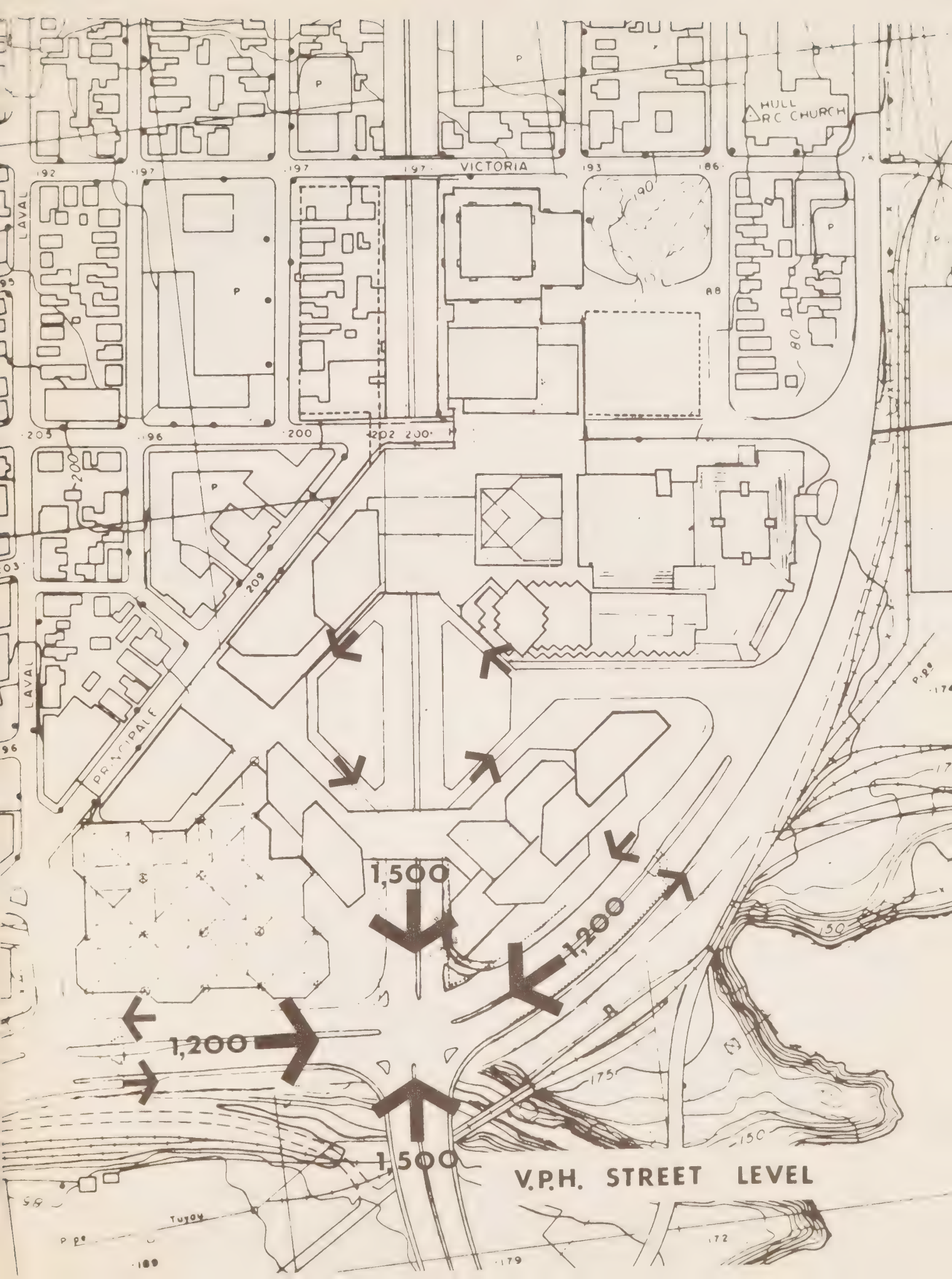
Maisonneuve and Portage Bridge	3 lanes N.	3 lanes S.
Taché and Laurier	3 lanes E.	3 lanes W.
Intersection	left and right turns	

The accompanying plan illustrated the main thru-traffic capacities at the intersection. In addition to these volumes, there are additional capacities of 100 vehicles for each left and each right hand turn.

Notice should be made to the fact that the entry and exit points of the main federal garage occur before and after the intersection further alleviating possible congestion at peak hours. These access points are indicated by the smaller arrows.

It is intended to extend the 6-lane boulevard treatment of the intersection further West to Eddy Street and further East and North along Laurier to Sacré-Coeur once the land becomes available from E.B. Eddy.

Circulation patterns and traffic counts on the Island of Hull have been analyzed by the Traffic Consultants and will be available with the final report.



F) Parking Garage Situation

The following data outlines the demand for and availability of parking spaces within the Core Study Area in the form of actual parking structures. It implies that there will be mutual use of all the parking facilities by Federal and private office employees and visitors, commercial staff and shoppers and where applicable by residents living within the core.

<u>Project</u>	<u>Demand</u>	<u>Availability</u>
Place du Portage 1	532	43
Place du Portage 2	400	340
Parc Hôtel de Ville	-	550
Phase 3	1,115	130
Phase 4	772	200
Maisonnette-Taché-Laurier	-	1,500
Provincial Site	1,806	2,000
	4,625 cars	4,760 cars

There is an excess of 135 cars within the parking network. It should be noted that with the implementation of a rapid transit system, a realignment of travel modes would make a proportion of the 4,760 spaces useable by other developments bordering the core. This would certainly alleviate the need for grade level parking lots so common in all our city cores.

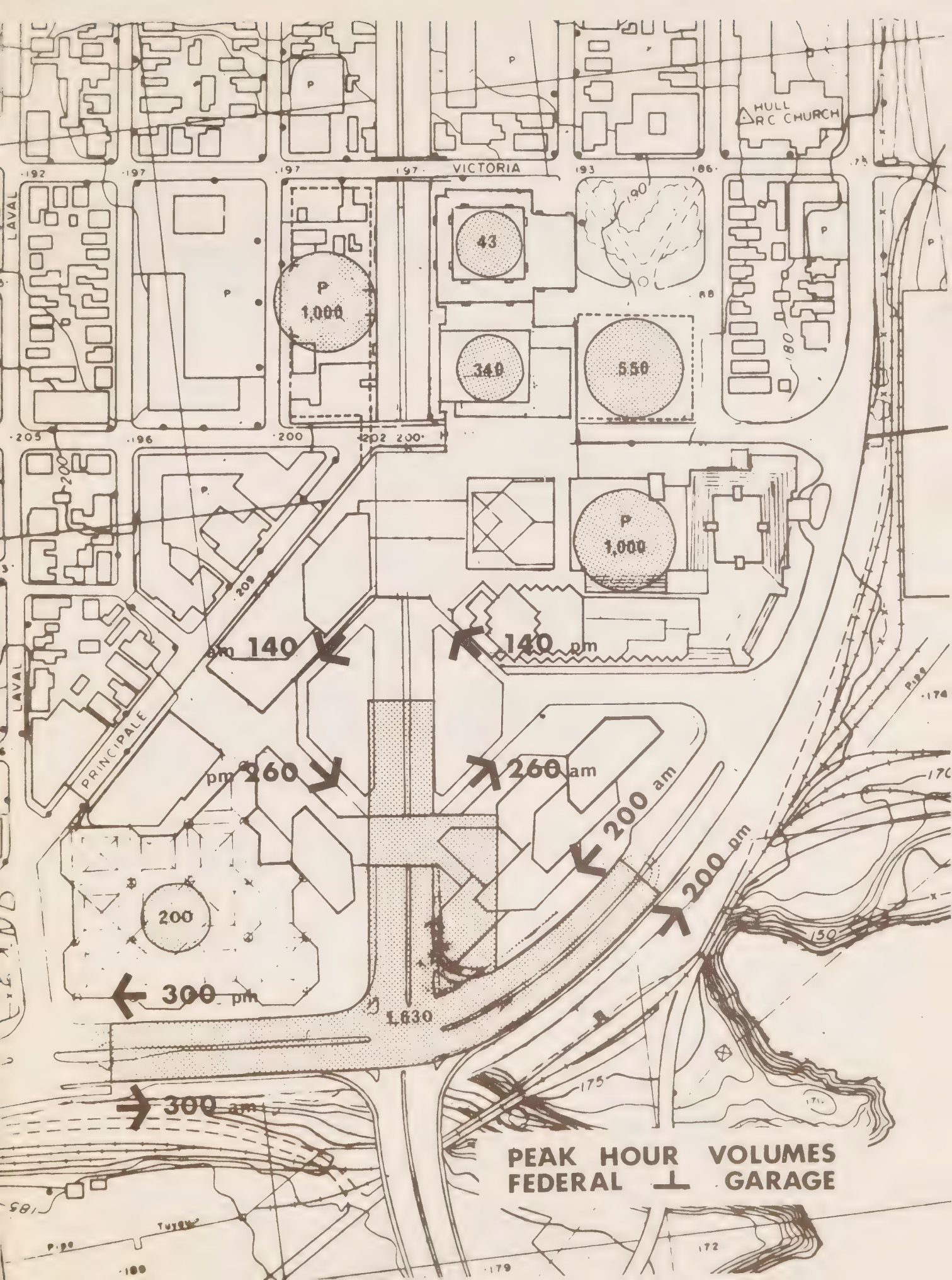
G) Parking Garage - Maisonneuve - Taché-Laurier

The Federal parking garage under Maisonneuve, Taché and Laurier is by design an elongated parking structure offering convenient access to various sectors of the core. Its strategic location also offers access to the E.B. Eddy lands. This garage could actually be described as three continuous garages served by not one but four entry and four exit points giving maximum efficiency in all cardinal directions. The ramp situation at the point of arrival is intended to function also for the "Provincial Site" garage.

It is estimated that of the 1,630 cars in the Federal garage, 900 would be utilizing the various ramps at a.m. and p.m. peak hours. The accompanying plan illustrates the direction and volume split taken by the Federal employees. This data is based on an actual survey of Federal departments.

The ramps at the Place d'accueil are utilized by 400 "federal" VPH. They have a capacity of 1,000 VPH permitting a potential 600 VPH coming from the Provincial Site garage at peak hours. This balance relates to a 1,000 car garage under the Provincial Site. (The additional 1,000 cars needed for the Provincial project are intended to be in a separate garage further north on Maisonneuve.)

A critical factor in maintaining the desired flow of vehicles is the means of controlling access and egress. In this regard, there are numerous possibilities from automatic gates to individual meters. This naturally depends on the exact relationship between the Federal and Provincial garages, the users, rates, etc. and is not expected to pose a serious problem. This aspect, however, will be dealt with in greater detail in the final report.



PEAK HOUR VOLUMES
FEDERAL — GARAGE

4. CONCLUSIONS

The conclusions that may be drawn from this density paper are the following:

a) The proposed core densities with all their ramifications to the pedestrian, the motorist and the three dimensional massing are within accepted urban levels. Note, that the Hull "centre-ville" is a part of the National Capital Core.

b) The activity base of pedestrian spaces is most significant in quality and quantity and serves to provide a positive urban environment.

c) The federal office programme and proposed massing for Site 3 answers the overall objectives and as such may be adopted.

d) The integrated programme proposed on Site 4 is a vital component of the Hull Core Concept. Its horizontal development and its lower FSI serves to step down the massing to the scale of Rue Principale and the E.B. Eddy land as well as enhancing the adult housing environment proposed at roof level.

e) The fulfilment of the Provincial Project which is dependent on the acquisition of federal lands is a further example of the rich, integrated mix possible with private developments in an urban context and as such should be encouraged. It should be noted that their programme was based on the Hatfield commercial report and the fulfilment of the federal 10-year accommodation programme.

f) Due to increasing space requirements and decreasing federal land availability, the Phase 1 to 4 answer only a portion of the 10-year programme. The greater half (Phases 5, 6, 7) still to be completed makes it unadvisable to spread further the first phases on other lands requiring additional expropriations.

g) The new FSI limits that are to be set up by the City of Hull must respond to the three dimensional objectives of the concept as well as the capacities set up by the various movement networks.

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